

Released by Air Quality Sciences, Inc.
Date Prepared: November 19, 1996
AQS Project #: 02792
AQS Report #: 02792-02

TABLE 2

SUMMARY OF FORMALDEHYDE EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2\cdot\text{hr}$	PREDICTED AIR CONCENTRATION**	
		$\mu\text{g}/\text{m}^3$	ppb
4.000	1.0	0.1	0.08
8.000	nd	0.1	0.08
24.000	nd	< 0.1	< 0.08
48.000	nd	< 0.1	< 0.08
72.000	nd	< 0.1	< 0.08
96.000	nd	< 0.1	< 0.08

*Exposure hours are nominal (± 1 hour).

**Based on $0.055 \text{ m}^2/\text{m}^3$ loading and 0.35 ACH, as specified by customer.

"nd" denotes non-detectable ($< 0.5 \mu\text{g}/\text{m}^2\cdot\text{hr}$ for formaldehyde).

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TABLE 3

SUMMARY OF TVOC EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2\cdot\text{hr}$	PREDICTED AIR CONCENTRATION $\mu\text{g}/\text{m}^3$ **
4.000	3243.2	401
8.000	2712.5	431
24.000	1300.7	216
48.000	254.1	67
72.000	190.5	20
96.000	121.4	6

*Exposure hours are nominal (± 1 hour).

**Based on $0.055 \text{ m}^2/\text{m}^3$ loading and 0.35 ACH, as specified by customer.

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TABLE 4

SUMMARY OF PARTICLE EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2\cdot\text{hr}$	PREDICTED AIR CONCENTRATION $\mu\text{g}/\text{m}^3$ **
4.000	nd	< 1
8.000	nd	< 1
24.000	nd	< 1
48.000	nd	< 1
72.000	nd	< 1
96.000	nd	< 1

*Exposure hours are nominal (± 1 hour).

**Based on $0.055 \text{ m}^2/\text{m}^3$ loading and 0.35 ACH, as specified by customer.

nd denotes non-detectable ($< 50 \mu\text{g}/\text{m}^2\cdot\text{hr}$ for Particles).

TABLE 5
EMISSION FACTORS OF IDENTIFIED INDIVIDUAL
VOLATILE ORGANIC COMPOUNDS
 $\mu\text{g}/\text{m}^2\cdot\text{hr}$

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR		
	4.0	24.0	96.0
1(2H)-Naphthalenone, 3,4-dihydro-3-methyl-*	4.2		
1(2H)-Naphthalenone, 7-(1,1-dimethylethyl)-3,4-dihydro-*	10.7		
1(2H)-Pyrazineacetonitrile, 5-amino-3,6-dihydro-3-imino-*	18.5	4.1	
1(3H)-Isobenzofuranone*	4.0		
1,1'-Biphenyl, 2,2'-diethyl*	9.5	24.9	
1,1'-Biphenyl, 2-methyl*		2.5	
1,1'-Biphenyl, 4-methyl*		3.0	
1,2,3-Propanetriol, triacetate (Triacetin)*	18.8	1.2	
1-Decanol (N-Decyl alcohol)	5.8		
1-Dodecanethiol*	9.4		
1-Dodecanol	479.8	155.4	
1-Heptanol, 6-methyl*	3.5	2.5	
1-Hexadecanol*		6.9	9.3
1-Hexanol, 2,2-dimethyl-*	1.8	1.1	0.7
1-Hexanol, 2-ethyl	147.1	94.4	29.8
1-Nonanol	6.2		
1-Octanol, 3,7-dimethyl	13.4	12.7	1.6
1-Tetradecanol	56.8	110.4	4.2
1-Tridecanol		25.6	

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COMPOUND IDENTIFIED	ELAPSED EXPOSURE HQUR		
	4.0	24.0	96.0
1-Undecanol*	28.0		
1H-Inden-1-one, 2,3-dihydro-3,3,5,7-tetramethyl-*	9.5		
1H-Pyrazole, 4,5-dihydro-3-methyl-*	23.2	5.8	
2,2,4-Trimethyl-1,3-pentanediol monoisobutyrate (Texanol)	55.7		
2,2-Dimethyl-1-isopropyl-1,3-propanediol monoisobutyrate (Texanol)	28.4		
2,6-Di-tert-butyl-4-methylphenol (BHT)	20.4		
2-Nonylphenol*		5.2	
2-Propanol, 1-ethoxy (8CI9CI)*	21.8	5.6	
2-Propenoic acid, octyl ester*	7.2		
3-Cyclohexene-1-methanol, $\alpha,\alpha,4$ -trimethyl*	9.7		
3-Phenyl-4-hydroxyacetophenone*	5.6		
4-Nonylphenol*		9.7	6.3
5-Methyl-1-heptanol*	2.9	1.9	
Acetic acid	54.6	9.9	0.7
Benzene, (1-propyloctyl)*		7.2	
Benzene, 1,1'-(1,1,3,3-tetramethyl-1,3-propanediyl)bis-*	10.9		
Benzene, 1,3,5-tris(1-methylethyl)-*	52.5		
Butanoic acid	1.4		
Cyclohexane, 2-butyl-1,1,3-trimethyl*	8.0		
Decahydro-4,4,8,9,10-pentamethylnaphthalene*	15.7		
Dibutyl maleate*		5.1	
Dipropylene glycol	8.4	3.0	
Dodecane	15.4	1.8	
Dodecane, 1-chloro*			2.7
Ethanol, 2-(2-butoxyethoxy)	11.0		

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COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR		
	4.0	24.0	96.0
Ethanol, 2-phenoxy	3.6		
Ethanone, 1-(7-hydroxy-5-methoxy-2,2-dimethyl-2H-1-benzopyran-8-yl)*	241.5	107.4	
Formamide, N,N-bis(2-cyanoethyl)-*		8.5	
Heptane, 3-methylene (9CI)*	0.7	0.9	0.5
Heptanoic acid	1.3		
Hexadecane (Cetane)	26.5		
Hexadecane, 3-methyl*	7.6		
Hexanal	1.5		
Hexanedioic acid, bis(1-methylethyl) ester (9CI)*	28.5	2.0	
Hexanoic acid, 2-ethyl	1033.5	294.7	3.8
Mephentoin*	7.3		
N-Methyl-N-propyl-propylamine*	2.0		
Naphthalene	8.1		
Naphthalene, 1,2,3,4-tetrahydro-1,1,6-trimethyl-*	11.6		
Naphthalene, 1,2,3,4-tetrahydro-1,5,8-trimethyl-*	8.6		
Naphthalene, 1,2,3,4-tetrahydro-5,7-dimethyl-*	6.1		
Naphthalene, 1,2,3,4-tetrahydro-6,7-dimethyl*	11.6		
Naphthalene, 1,2,3,4-tetrahydro-6-methyl*	1.4		
Naphthalene, 1-methyl	4.8		
Naphthalene, 2,6-dimethyl*	4.6		
Naphthalene, 6,7-diethyl-1,2,3,4-tetrahydro-1,1,4,4-tetramethyl*	30.6		
Nonanoic acid, ethyl ester*		2.4	
Octadecane		7.0	
Octanal, 7-hydroxy-3,7-dimethyl*	10.2		

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COMPOUND IDENTIFIED	ELAPSED EXPOSURE HQUR		
	4.0	24.0	96.0
Octanethioic acid, S-ethyl ester*	24.6		
Octanethioic acid, S-methyl ester*		13.4	
Pentadecane	26.0		
Phenol	331.1	206.7	56.7
Phenol, 4-(1-methyl-1-phenylethyl)-*	2.7	32.7	
Phenol, 4-t-butyl (4-(1,1-Dimethylethyl)phenol)	7.5		
Phenol, nonyl-*	8.2	17.9	4.1
Phosphonic acid, diethyl ester*		3.4	
Phthalate, diethyl (1,2-Benzenedicarboxylic acid, diethyl ester)	17.5	6.5	
Propanoic acid	2.6		
TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate)	72.0	71.7	
Tetradecane	9.0		
Toluene (Methylbenzene)	1.5	1.4	0.7
Unidentified	66.5	20.4	
α -Isomethyl ionone*	22.2		
ϵ -Caprolactam (2H-Azepin-2-one, hexahydro)	19.8	3.4	

*Indicates NIST/EPA/NIH best library match only.
 Individual volatile organic compounds are calibrated relative to toluene.

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TABLE 6

**SUMMARY DATA
STATE OF WASHINGTON COMPLIANCE**

**PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING**

POLLUTANT CONCENTRATIONS*

	Formaldehyde (HCHO) $\mu\text{g}/\text{m}^3$	Total Volatile Organics (TVOC) $\mu\text{g}/\text{m}^3$	Particles $\mu\text{g}/\text{m}^3$
State of Washington Specification	61 (50 ppb)	500	50
Maximum Concentration	0.1 (0.08 ppb)	401	< 1
Minimum Concentration	< 0.1 (< 0.08 ppb)	6	< 1

*Pollutant concentrations determined from Indoor Air Model Exposure Version 2.0, U.S. Environmental Protection Agency, coupled with emissions data from AQS.

TABLE 7

REGULATORY OR GUIDANCE CHEMICAL LISTS

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

COMPOUND	✓() = FOUND IN LISTING (CLASS)			
	CAL AIR TOXICS	CAL PROP. 65	NTP	IARC
2,6-Di-tert-butyl-4-methylphenol (BHT)				✓(3)
Formaldehyde	✓(r)	✓	✓(2)	✓(2A)
Phenol				✓(3)
Toluene (Methylbenzene)		✓		✓(3)
ε-Caprolactam (2H-Azepin-2-one, hexahydro)				✓(4)

CAL Air Toxics: California Air Resources Board, Toxic Air Contaminants
r = under review

CAL Prop. 65: California Health and Welfare Agency, Proposition 65 Chemicals
1 = known to cause cancer
2 = known to cause reproductive toxicity

NTP: National Toxicology Program
1 = known to be carcinogenic
2 = anticipated to be carcinogenic

IARC: International Agency for Research on Cancer
1A = carcinogenic to humans
2A = probably carcinogenic to humans
2B = possibly carcinogenic to humans
3 = unclassifiable as to carcinogenicity to humans
4 = probably not carcinogenic to humans

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TABLE 8

THRESHOLD LIMIT VALUES FOR OCCUPATIONAL EXPOSURES

PRODUCT 02792-010AA, NEW VINYL COATED FIBERGLASS WINDOW SCREENING

CAS NUMBER	COMPOUND IDENTIFIED	MAXIMUM PREDICTED CONCENTRATION (mg/m ³)	DFG MAK (mg/m ³)		ACGIH TLV (mg/m ³)		OSHA PEL [†] (mg/m ³)	
			TWA	PEAK	TWA	STEL**	TWA	STEL
92-52-4	1,1'-Biphenyl (9CI)	0.001	1		1.3		1	
123-51-3	1-Butanol, 3- methyl	< 0.001	360	720	361	452	360	450
64-19-7	Acetic acid	0.007	25	50	25	37	25	
112-34-5	Ethanol, 2-(2- butoxyethoxy)	0.001	100	200				
91-20-3	Naphthalene	0.001	50		52	79	50	75
108-95-2	Phenol [†]	0.037	19	38	19		19	
98-54-4	Phenol, 4-t-butyl	0.001	0.5	2.5				
79-09-4	Propanoic acid	< 0.001	30	60	30		30'	
108-88-3	Toluene	< 0.001	190	950	188		375	560

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CAS NUMBER	COMPOUND IDENTIFIED	MAXIMUM PREDICTED CONCENTRATION (mg/m ³)	DFG MAK (mg/m ³)		ACGIH TLV (mg/m ³)		OSHA PEL [†] (mg/m ³)	
			TWA	PEAK	TWA	STEL**	TWA	STEL
105-60-2	ε-Caprolactam	0.003	23		23	46	20	40
50-00-0	Formaldehyde	< 0.001	0.5	1.2		C 0.37	0.9	2.5

Key:

DFG = Federal Republic of Germany
 MAK = Maximum Concentration Values in the Workplace (Germany)
 TWA = Time Weighted Average
 ACGIH = American Conference of Governmental Industrial Hygienists
 OSHA = Occupational Safety and Health Administration
 TLV = Threshold Limit Value
 STEL = Short-term Exposure Limit

**Values preceded by the letter "C" indicate ceiling levels, indicating concentrations which should not be exceeded.

[†]Skin may be significant route of exposure.

Numbers in parentheses represent levels which have proposed changes.

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TABLE 9

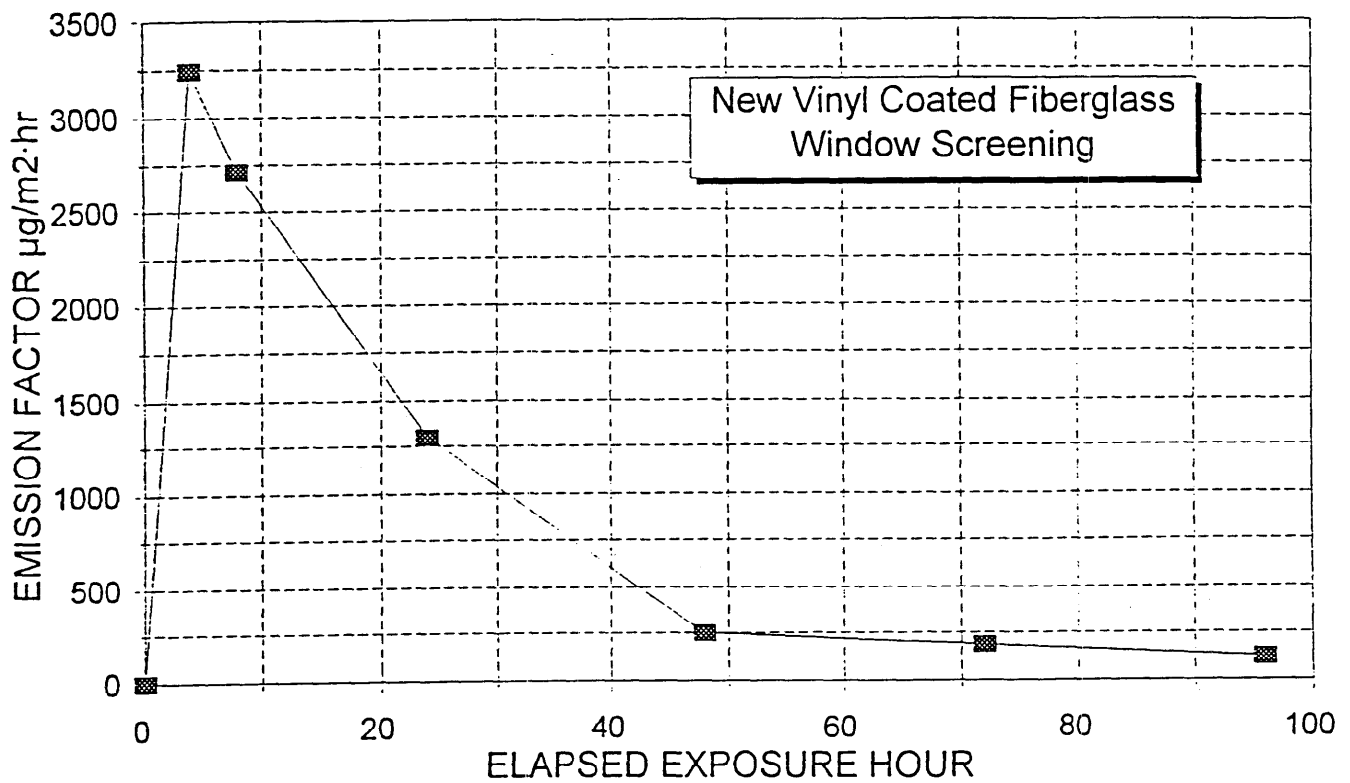
PREDICTED CONCENTRATIONS OVER 96 HOURS FOR
CONTAMINANTS WITH MAK VALUES

PRODUCT 02792-020AA, NEW VINYL COATED FIBERGLASS
WINDOW SCREENING

COMPOUND	PREDICTED CONCENTRATION ($\mu\text{g}/\text{m}^3$)					
	4 HRS	8 HRS	24 HRS	48 HRS	72 HRS	96 HRS
1,1'-Biphenyl (9CI)	0.5	0.5	0.1	< 0.1	< 0.1	< 0.1
1-Butanol, 3-methyl	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Acetic acid	6.8	6.4	1.8	0.2	< 0.1	< 0.1
Ethanol, 2-(2-butoxyethoxy)	1.5	1.3	0.3	< 0.1	< 0.1	< 0.1
Naphthalene	1.1	1.0	0.2	< 0.1	< 0.1	< 0.1
Phenol	37.5	43.4	33.7	20.3	12.2	7.3
Phenol, 4-t-butyl	1.0	0.9	0.2	< 0.1	< 0.1	< 0.1
Propanoic acid	0.3	0.3	0.1	< 0.1	< 0.1	< 0.1
Toluene	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1
ϵ -Caprolactam	2.6	2.4	0.5	< 0.1	< 0.1	< 0.1
Formaldehyde	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1

FIGURE 1

TVOC EMISSION PROFILE WITH TIME PRODUCT 02792-020AA



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7. NIOSH Manual of Analytical Methods. Method 0500, NIOSH Publication 84-100, 1985.
8. Sparks, Leslie, Indoor Air Exposure Model, Version 2.0, Air and Energy Engineering Research Laboratory, USEPA, RTP, NC, April, 1991.



PHIFER WIRE PRODUCTS, INC.

P. O. BOX 1700 • TUSCALOOSA, ALABAMA 35403-1700 U.S.A.

■ CHARLES E. MORGAN
Executive Vice President and Corporate Counsel

October 30, 1996

Ms. Judith Hayes
Compliance Officer
U.S. Consumer Product Safety Commission
4330 East West Highway, Room 613
Bethesda, MD 20814-4408

Via Airborne

Re: CPSC CA930075
Phifer Wire Products, Inc.
Polymer (PVC) Coated Fiberglass Screening

96 OCT 31 12:57

RECEIVED
CPSC COMPLAINT
L1

Dear Ms. Hayes:

I am writing in response to your letter of October 24, 1996 and will address each numbered item of your letter in correspondingly numbered paragraphs below.

- (1) We have received one consumer complaint since our update report of July 2, 1996. Enclosed is a copy of a letter dated July 19, 1996 from Peter I. Tzilos and also a copy of my response dated July 29, 1996. I have not heard from Mr. Tzilos since mailing that letter. All the test reports and other "enclosures" referred to in my letter to Mr. Tzilos were provided to the C.P.S.C. in our previous reports.

There may be another consumer who has reported some problem with our product. We received a message to that effect from our customer - a window manufacturer - but have not received any information from the consumer nor do we know the consumer's name. As soon as we receive more information, I will forward it to you.

- (2) When we first received complaints, in 1991 and 1992, regarding screening that had been manufactured in 1988 and 1989, we replaced some of that screening with new formula PVC-coated fiberglass screening. Several of those consumers immediately complained about the odor of the new product - long before it had time to degrade and exhibit the kind of odor associated with the rapidly degrading 1988-89 vintage material. This led us to the conclusion that a small percentage of consumers are sensitive to any vinyl odor (all new vinyl products have some plastic odor). You already have copies of all our correspondence with those consumers. I do not know if anyone since then has complained about our current formula screening.

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10/31/96

Ms. Judith Hayes
October 30, 1996
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- (3) Enclosed are complete copies of the complaints filed in the seven lawsuits mentioned in my July 2, 1996 letter. These are the only products liability lawsuits filed against Phifer Wire Products in the company's 44-year history. The three suits that have been settled and dismissed without any finding or admission of product defect or liability (settlement amounts in parentheses) are Chase (\$49,500), DeMan (\$15,000) and Kamuda (\$23,500).

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SEE P.S.

- (4) Prior to January 1, 1988 our PVC formulation consisted of the following ingredients:

diisononyl phthalate or "DINP"

Drapex® 4.4 octyl epoxy tallate plasticizer

Polypeg® E-400 polyethylene glycol ester

Oxy-dispersion resin PVC homopolymer

GEON dispersion resin PVC homopolymer

GEON blending resin PVC homopolymer

Silicone fluid (polydimethylsiloxane)

Kerosine

Thermoguard S antimony trioxide

aluminum paste pigment


black paste - carbon black pigment

white paste - zinc sulfide pigment

(For silvergray but not for charcoal screening)

Dyphos lead stabilizer (dibasic lead phosphite)

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SEE P.S.

- (5) The 1988-89 formula was the same as the above described pre-1988 formula; except that, beginning in January 1988, we substituted 2 pph (parts per hundred) of Therm-Chek® 6223 calcium cadmium zinc stabilizer in place of the Dyphos lead stabilizer. Since the lead stabilizer used before 1988 came in the form of a white powder, a larger measure of carbon black pigment had to be used before 1988, as compared with the 1988-89 formulation, to achieve the correct colors. We believe that the
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quantity of the calcium cadmium zinc stabilizer used was not enough to achieve the results achieved with the lead stabilizer. Furthermore, the problem was exacerbated by the reduction in carbon black pigment which also acts as a stabilizer. Consequently, the product, especially the silver gray color, degraded rapidly and sometimes emitted a bad odor when degrading. (Please note that the lead stabilizer used before 1988 was very effective - we never received consumer complaints for degradation or discoloration. The lead was removed because disposal of scrap material containing lead is a potential environmental problem. The small quantity of lead bound into the coating on the screening posed absolutely no threat to consumers and was never the basis of any complaints or claims of any kind).

CONFIDENTIAL
SEE P.S.

- (6) In July 1989, "the PVC formula was improved by increasing the amount of pigmentation" and by increasing the amount of calcium cadmium zinc stabilizer by 50% - from 2 pph to 3 pph. The above quoted statement from your letter and our 1993 Full Report refers to the fact that we more than doubled the quantity of "black paste" (carbon black pigment) in our plastisol formula for the silvergray screening. As explained in item (5) above, carbon black pigment acts as a stabilizer. To maintain the correct shade of gray despite the increase in carbon black pigment, we also added some white paste (zinc sulfide pigment) to the formula in July 1989.

We further improved the plastisol formula in November 1993 by replacing the Therm-Chek® 6223 calcium cadmium zinc stabilizer with Mark 4781A - a barium zinc heat stabilizer. For the silvergray, we also added Mark 1413 UV absorber and Camel Wite, a calcium carbonate filler.

- (7) Enclosed in separately sealed plastic bags are two samples, nine square feet each, of recently manufactured PhiferGlass insect screening - one charcoal and the other silvergray. Neither sample has ever been exposed to direct sunlight.

If you need additional information, please call me. My direct number is 205/750-4757.

Sincerely yours,

PHIFER WIRE PRODUCTS, INC.

Charles Morgan
Charles Morgan

Enclosures

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Ms. Judith Hayes

October 30, 1996

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P.S. PLEASE NOTE THAT THE INFORMATION CONTAINED IN ITEMS (4), (5) AND (6) ABOVE IS HIGHLY CONFIDENTIAL PROPRIETARY INFORMATION ACQUIRED THROUGH YEARS OF RESEARCH, EXPERIMENTATION AND MANUFACTURING EXPERIENCE. WE HAVE PREVIOUSLY PROVIDED THAT INFORMATION TO INDIVIDUAL CONSUMERS BUT WOULD NOT WANT IT TO BE MADE AVAILABLE TO THE PUBLIC, IN GENERAL, AFTER IT BECOMES PART OF OUR CPSC FILE. THE ONLY THINGS THAT CAN AFFECT CONSUMERS ARE THE SUBSTANCES (VOCs) EMITTED FROM THE PRODUCT, WHICH CAN BE IDENTIFIED FROM THE EMISSIONS TEST DATA THAT WE HAVE ALREADY DISTRIBUTED AND DO NOT CONSIDER CONFIDENTIAL.

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Peter
I. Tzilos | Architects
Planners

18277 Filmore, Livonia, Michigan 48152

Telephone (810) 442-1340 Fax (810) 442-1341

19 July, 1996

Phifer Wire Products.
P.O. Box 1700
Tuscaloosa, Alabama 35403-1700

Re: Potential health-related problem with window screens.

Gentlemen:

The windows installed in our home are manufactured by PELLA WINDOW AND DOOR COMPANY, INC. According to the window manufacturer, the screens supplied with these windows have been manufactured by your company.

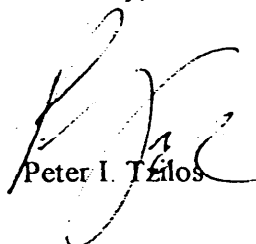
We are enclosing here a copy of our letter to the window manufacturer dated 19 July, 1996, identifying certain problems with the screens. The very concerns raised in this letter are also directed to your attention.

According to the window manufacturer, they are aware of certain problems with materials supplied by your company to them. They indicated however that they are not aware of any potential health-related problems.

We bring this matter to your attention and ask for your response in writing. If you are aware of any problems what-so-ever, please let us know. Also, please identify any studies conducted by you or on your behalf related in any way to this matter. We have three young children in our home and are very concern.

We would appreciate receiving your response in writing.

Sincerely,


Peter I. Tzilos

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Peter
I. Tzilos | Architects
Planners

18277 Filmore, Livonia, Michigan 48152

Telephone (810) 442-1340 Fax (810) 442-1341

19 July, 1996

Pella Window and Door Company, Inc.
2000 Haggerty Road
West Bloomfield, Michigan 48033
Att: Mr. Ron Hanson, Service Manager

Re: Potential health-related problem with window screens.

Dear Mr. Hanson:

As you requested, I am returning to you for replacement, the window screens that were part of my window purchase from your company in 1988. We are enclosing a copy of the order form showing window sizes. In all, there are (30) screens of varying size & finish.

As I indicated to you over the telephone, we have been frantically trying to identify a foul odor throughout the house for a number of years now. Connected with this odor are a number of health concerns such as headaches, breathing difficulties, coughing, nausea, stomach cramps and similar effects.

It wasn't until very recently that someone suggested to check the window screens. Upon checking these screens closely, it became obvious that they were the problem. It seems the sun acts on this material, causing it to discolor and release some type of gas.

I should point out that an inspection of these screens will show that the ones facing East or South are extensively discolored and emit a very strong odor. Those facing North, or those shaded from the sun appear brand new with no apparent emissions.

All this has us very concerned about the possibility that we have been ingesting potentially dangerous materials. I ask that you inform us in detail of all that you know regarding this matter, including any potential risks, if any, so we may protect our selves accordingly.

I will also be contacting the screen manufacturer for information regarding this matter. Per the information provided by you, the screen material manufacturer is,

PHIFER WIRE PRODUCTS
P.O. BOX 1700
TUSCALOOSA, ALABAMA, 35403-1700

We would appreciate receiving your response in writing.

Sincerely,

Peter I. Tzilos
cc: Phifer Wire Products
[Tzi-Ekga\TextInfo\Personal\Pella1]

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PHIFER WIRE PRODUCTS, INC.

P. O. BOX 1700 • TUSCALOOSA, ALABAMA 35403-1700 U.S.A.

■ CHARLES E. MORGAN
Executive Vice President and Corporate Counsel

July 29, 1996

Mr. Peter I. Tzilos
18277 Filmore
Livonia, Michigan 48152

Dear Mr. Tzilos:

I have received your letter of July 19, 1996 and will respond to the questions and concerns you have expressed.

As Mr. Hanson at Pella Window and Door may have told you, we did experience some performance problems with the silver-gray colored fiberglass window screening that we sold in 1988. Prior to 1988, we used lead powder as a color stabilizer in the vinyl coating that is applied to the fiberglass yarn prior to weaving it into window screening. The lead stabilizer worked very well and posed no threat to homeowners. However, because of the environmental risk associated with disposal of products containing lead, we removed all lead from all our products. The environmentally safer, lead-free screening did not perform as well - some of it discolored prematurely and had to be replaced under our warranty program.

There was often a bad odor associated with the discolored screening. Out of the thousands of people for whom we replaced screening, there were a few who complained of allergic reactions to the odor, similar to the reactions you mention in your letter to Pella. In response to these reports, we hired a toxicologist at the University of Alabama School of Public Health to test the material. He concluded that the screening poses no significant health risk. He said the substances emitted could be temporary irritants for some people, but that symptoms would go away as soon as the screening was removed. We provided complete results of that study to anyone interested and will be happy to provide them to you. They are summarized in an April 27, 1993 report by Dr. Clifton D. Crutchfield, a complete copy of which is enclosed.

Even though the University of Alabama School of Public Health is a separate and independent testing facility, some consumers were not satisfied with one set of test data and insisted upon having *their* screening tested at a facility of their own choosing. Consequently, we ended up having the product tested a total of five times. *None of these tests ever detected emissions of any substance at levels that could be considered toxic or hazardous to your health.*

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Mr. Peter I. Tzilos
July 29, 1996
Page Two

The first four tests are summarized in the enclosed copy of Dr. Crutchfield's 1993 report. The most sophisticated testing was performed by Air Quality Sciences, Inc. ("AQS") in 1994. A complete copy of the AQS report ("Indoor Air Quality Evaluation of Vinyl Coated Fiberglass Window Screening") is also enclosed.

AQS was selected by a homeowner on the advice of her environmental consultant. AQS is a highly respected laboratory that performs testing for the U.S. Environmental Protection Agency. The homeowner mailed samples of her screens (which are identical to yours - 1988 vintage silver gray) directly to AQS.

The AQS Report is full of technical data that was beyond my comprehension, so I requested and received a three-page "Interpretative Report" to explain the data. I also asked Dr. Crutchfield to analyze the AQS data, which he did in a letter dated November 23, 1994 (copy enclosed).

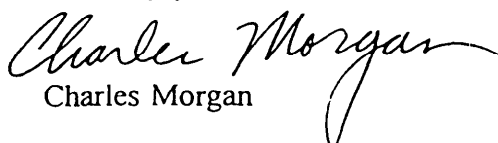
The Air Quality Sciences Interpretative Report (copy enclosed) puts the test data into perspective by comparing the total volatile organic compounds (TVOC) emissions from our product with "normal ranges" established for other indoor building materials. Though the report notes that no normal ranges have been established for window screen emissions, it compares the results of our product testing to the criteria established for carpets, flooring and wall coverings. AQS notes that the emissions from our products were at levels significantly below the TVOC emissions criteria established for carpets, flooring and wall coverings. The report also states that a regulatory evaluation of the chemicals detected in emissions from our product "did not indicate the presence of any known human or potential human carcinogens."

Dr. Crutchfield found the results of the AQS study to be "consistent with the results of four previous tests done of Phifer screening material that I reviewed and summarized in a report dated April 27, 1993. Those previous studies, conducted independently by four separate laboratories and/or environmental firms, also found emission rates from Phifer screening materials to be far below any level considered to be potentially toxic."

To the best of my knowledge, there has been no testing of this product other than the five studies identified in this letter and in the enclosed reports. I have seen no data that contradict the findings of Dr. Crutchfield and the other researchers.

If you would like to discuss this subject further, please call me.

Sincerely yours,


Charles Morgan

Enclosures

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Copy

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

October 24, 1996

VIA FAX (205) 750-3022

Charles Morgan
Executive Vice President and Corporate Counsel
Phifer Wire Products, Inc.
P.O. Box 1700
Tuscaloosa, AL 35403-1700

RE: CPSC CA930075
Phifer Wire Products, Inc.
Polymer (PVC) Coated Fiberglass Screening Material

Dear Mr. Morgan:

Pursuant to our telephone conversation of October 22, 1996, and recently received consumer inquiries to the Commission's staff concerning the above mentioned product, I would like to request the following information:

- (1) An updated list of consumer complaints since your correspondence of July 2, 1996. Please include copies of the complaints, indicating the date of receipt.
- (2) Has your firm received any consumer complaints concerning the revised formulated (improved) screens that replaced the subject defective screens? If so, please provide a list and copies of these complaints indicating the date of receipt.
- (3) Copies of the seven lawsuits mentioned in your letter of July 2, 1996. Please indicate the monetary amounts of the three lawsuits suits that were settled.
- (4) What heat stabilizers, pigments, plasticizers, lubricants, and other modifiers/additives were blended with the PVC formulation applied to the subject screens before January 1, 1988?
- (5) What heat stabilizers, pigments, plasticizers, lubricants, and other modifiers/additives were blended with the PVC between January 1, 1988 and July 1989? Describe the changes in ingredients or processes believed to have caused the defect.
- (6) What heat stabilizers, pigments, plasticizers, lubricants, and other modifiers/additives were blended with the PVC after

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July 1, 1989? Describe which of these (or other) ingredients (or process) were altered to make the PVC more resistant to degradation by heat and UV. What is specifically meant by the explanation that "the PVC formula was improved by increasing the level of pigmentation"?

(7) A sample of recently manufactured "improved" screen and a sample of the defective screen. If possible, the size of each sample should be nine square feet packaged in a tightly sealed bag (polyvinylfluoride is best but polyethylene is acceptable). The recently manufactured sample should not be exposed to direct sunlight prior to submitting to us.

Please submit the requested information and samples prior to Thursday, October 31, 1996. The samples should be sent to my attention at the following address:

U.S. Consumer Product Safety Commission
4330 East West Highway, Room 613
Bethesda, MD 20814-4408

Your cooperation in this matter is greatly appreciated. If you should have any questions concerning this request, please contact me as noted below.

Sincerely,

Judith Hayes
Compliance Officer
(301) 504-0608, ext. 1355
Fax (301) 504-0359

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